9. IMPACT OF FOOD GROUPS INTAKES ON THE RISK OF COLORECTAL CANCER – 2000–2008 STUDY

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Material and methods

Methods and statistical analyses used in this part of the study were the same as described in chapter 7.

Results

Cereals/Grains

Grains consumption analysis was done for all grain/grain products together and for whole grains products and refine grains products separately. Median intake of grain products was 77.00 portions during week in both groups, there were mostly refined grains (median: 70.00 portions/week in both groups). There were no statistically significant differences between groups for consumption of grains (Table 9.1).

Cases had a little higher median intake of grains and whole grains (1557.54 g/week and 46.55 g/week) than controls (respectively: 1540.77 g/week and 10.99 g/week), however these differences were not statistically significant. No differences were found also in consumption of refined grains. Median intake was 1256.57 g/week in the cases group and 1291.64 among the controls (Table 9.2).

Table 9.1. Mean and median intakes of cereals products for colorectal cases and controls – expressed in number of portions per week (2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Grains – total	Mean	80.57	80.40	
[portions/week]	SD	23.32	25.31	0.588
	Median	77.00	77.00	
	(Q3–Q1)/2	14.00	17.50	

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
whole grains	Mean	9.29	9.10	
[portions/week]	SD	9.95	10.57	0.409
	Median	7.00	7.00	
	(Q3–Q1)/2	7.00	7.00	
refined grains	Mean	71.28	71.31	
[portions/week]	SD	20.14	21.39	0.800
	Median	70.00	70.00	
	(Q3–Q1)/2	59.50	61.25	

Table 9.2. Mean and median intakes of cereals products for colorectal cases and controls – expressed in grams per week (2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Grains – total	Mean	1630.44	1656.62	
[g/week]	SD	645.10	704.75	0.809
	Median	1557.54	1540.77	
	(Q3–Q1)/2	383.99	397.53	
whole grains	Mean			
[g/week]	SD			0.107
	Median			
	(Q3–Q1)/2			
refined grains	Mean			
[g/week]	SD			0.241
	Median			
	(Q3–Q1)/2			

Fruits

Our analysis showed that colorectal cancer cases consumed fewer portions of fruits (all kind of fruits together) than controls. The median intake of fruits among cases was 9.46 portions per week and among control 11.33. This difference was statistically significant (Table 9.3). Since the most often eaten fruits in Poland are apples – they were analyzed separately. The consumption of apples was lower in cases (4.75 vs. 5.00 portions per week in controls), while there were no differences between the analyzed groups for the consumption of berries, citrus or stone fruits and others.

Fruits intake expressed as weight of fruits eaten per week was lower for all fruits (349.16 g/week) and apples (165.66 g/week) in the cancer group compared with controls (379.23 g/week and 180.15 g/week, respectively), but differences were without statistical significance. The intake of other analyzed kinds of fruit was similar in the study groups – Table 9.4.

Table 9.3. Mean and median intakes of fruits for colorectal cancer cases and controls – expressed in number of portions per week (Krakow case-control study; 2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Fruits – total	Mean	13.20	17.98	
[portions/week]	SD	11.90	22.71	0.002
	Median	9.46	11.33	
	(Q3–Q1)/2	6.09	9.07	
Apples	Mean	6.07	8.16	
[portions/week]	SD	6.52	10.08	0.003
	Median	4.75	5.00	
	(Q3–Q1)/2	2.63	4.38	
Berries	Mean	3.11	4.44	
[portions/week]	SD	4.19	7.94	0.543
	Median	1.50	1.50	
	(Q3–Q1)/2	1.87	2.51	
Citrus fruits	Mean	1.52	1.72	
[portions/week]	SD	1.99	3.42	0.376
	Median	0.85	0.91	
	(Q3–Q1)/2	7.00	28.88	
Stone fruits	Mean	1.41	2.06	
[portions/week]	SD	2.23	4.84	0.547
	Median	0.57	0.57	
	(Q3–Q1)/2	0.71	0.97	
Other fruits	Mean	1.54	2.10	
[portions/week]	SD	2.01	4.00	0.726
	Median	1.00	1.00	
	(Q3–Q1)/2	0.87	1.19	

Table 9.4. Mean and median intakes of fruits for colorectal cases and controls – expressed in grams per week (Krakow case-control study; 2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Fruits – total	Mean	504.21	568.84	
[g/week]	SD	436.15	504.17	0.086
	Median	349.16	379.23	
	(Q3–Q1)/2	214.15	260.93	
Apples	Mean	240.11	278.16	
[g/week]	SD	259.04	313.66	0.083
	Median	165.66	180.15	
	(Q3–Q1)/2	116.90	124.08	
Berries	Mean	101.61	111.23	
[g/week]	SD	123.61	137.53	0.783
	Median	58.15	58.35	
	(Q3–Q1)/2	50.44	71.95	

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Citrus fruits	Mean	39.72	38.92	
[g/week]	SD	50.93	57.68	0.111
	Median	23.47	21.63	
	(Q3–Q1)/2	239.30	249.11	
Stone fruits	Mean	66.92	78.21	
[g/week]	SD	97.14	132.54	0.809
	Median	37.15	38.01	
	(Q3–Q1)/2	35.73	41.55	
Other fruits	Mean	55.85	62.31	
[g/week]	SD	69.85	98.94	0.638
	Median	36.63	36.44	
	(Q3–Q1)/2	29.32	35.46	

Vegetables

Table 9.5 presents consumption of vegetables among colorectal cancer cases and controls. Cases consumed overall fewer portions of vegetables (11.98 portions/week) than controls (12.53 portions/week) – and the difference was statistically significant.

The same trend was observed for raw vegetables intake, where the median consumption was 6.75 portions/week for colorectal cancer cases and 7.09 portions/week for the controls, but this result was not statistically significant. Analysis of more specific groups of raw vegetables showed only a little lower, but insignificant, median intake of tomato/sweet paper and slightly higher (also insignificant) median consumption of mixed salads (made from raw vegetables) in cases.

No differences were found between cases and controls for the consumption of processed vegetables (3.28 portions/week vs. 3.40 portions/week in controls) and specific groups of processed vegetables (cruciferous and other processed vegetables). Intake of mushrooms was very low in both groups (median: 0.06 portions/week in cases and 0.00 portions/week among controls) and without statistical significance.

Analysis of pickled vegetables consumption showed that cases consumed fewer portions of this kind of vegetables (median: 1.13) than controls (median: 1.57) and the difference was highly significant ($p < 0.001$).

The other approach to analysis of vegetables consumption based on weight calculation showed similar results in respect to intake of all vegetables. Median intake of all vegetables in cases was significantly lower (550.03 g/week) than in the controls (582.79 g/week).

Statistically significant differences were also found for consumption of raw vegetables (cases: 206.78 g/week; controls: 231.11 g/week) and among them for tomato/sweet pepper (cases: 100.17 g/week vs. 106.44 g/week in controls) and onion/chives (cases: 2.59 g/week vs. controls: 2.73 g/week). We did not observe statistically significant differences in consumption of lettuce, cabbages/cucumber/radish, carrot and mixed salads – Table 9.6.

The consumption of processed vegetables was slightly higher among the cases (239.40 g/week vs. 238.42 g/week in controls) but there were no statistically significant differences between colorectal cancer cases and controls for the consumption of all processed vegetables as well as cruciferous and other processed vegetables – Table 9.6.

A slightly higher, but insignificant intake of mushrooms was observed among the cases (1.54 g/week) than controls (0.00 g/week).

Statistically lower intake of pickled vegetables was found among cancer patients than controls (67.76 g/week vs. 82.18 g/week, respectively) – Table 9.6.

In our analysis potatoes were not included in the vegetables – total and processed vegetables groups. We did not find any significant differences between the study groups in weekly consumption of potatoes neither in number of portion analysis (median: 10.22 portions/week in both groups), nor in weight analysis (627.13 g/week in cases; 615.51 g/week in controls).

Table 9.5. Mean and median intakes of vegetables for colorectal cancer cases and controls – expressed in number of portions per week (Krakow case-control study; 2000–2008)

Intakes		**Cases N = 584**	**Controls N = 745**	**p value for Mann-Whitney test**
Vegetables – total	Mean	13.71	16.31	
[portions/week]	SD	7.60	12.17	0.016
	Median	11.98	12.53	
	(Q3–Q1)/2	4.61	5.42	
Raw vegetables – total	Mean	8.08	9.86	
[portions/week]	SD	5.63	9.31	0.107
	Median	6.75	7.09	
	(Q3–Q1)/2	2.94	3.97	
lettuce	Mean	0.57	0.61	
[portions/week]	SD	0.87	1.44	0.185
	Median	0.28	0.28	
	(Q3–Q1)/2	0.50	0.28	
cabbages, cucumber,	Mean	1.04	1.12	
radish	SD	1.04	1.14	0.188
[portions/week]	Median	1.00	1.00	
	(Q3–Q1)/2	0.35	0.50	
carrot	Mean	0.65	0.69	
[portions/week]	SD	0.88	0.98	0.347
	Median	0.57	0.57	
	(Q3–Q1)/2	0.44	0.47	
tomato, sweet	Mean	4.57	5.97	
pepper	SD	3.83	6.85	0.132
[portions/week]	Median	3.56	3.61	
	(Q3–Q1)/2	2.61	2.77	
onion, chives	Mean	0.65	0.82	
[portions/week]	SD	1.12	1.43	0.769
	Median	0.28	0.28	
	(Q3–Q1)/2	0.50	0.50	

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
mixed salads	Mean	0.60	0.66	
[portions/week]	SD	0.82	1.08	0.607
	Median	0.57	0.50	
	(Q3–Q1)/2	0.50	0.50	
Processed vegetables – total	Mean	3.83	4.00	
[portions/week]	SD	2.51	2.57	0.218
	Median	3.28	3.40	
	(Q3–Q1)/2	1.28	1.40	
cruciferous vegetables	Mean	1.22	1.32	
[portions/week]	SD	1.03	1.18	0.298
	Median	1.13	1.13	
	(Q3–Q1)/2	0.65	0.57	
other vegetables	Mean	2.60	2.68	
[portions/week]	SD	1.94	1.89	0.461
	Median	2.25	2.25	
	(Q3–Q1)/2	0.89	0.84	
Mushrooms	Mean	0.21	0.20	
[portions/week]	SD	0.47	0.42	0.320
	Median	0.06	0.00	
	(Q3–Q1)/2	0.06	0.06	
Pickled vegetables	Mean	1.60	2.24	
[portions/week]	SD	1.69	2.79	< 0.001
	Median	1.13	1.57	
	(Q3–Q1)/2	0.74	1.16	
Potatoes and potatoes	Mean	11.09	11.45	
dishes	SD	7.17	7.78	0.659
[portions/week]	Median	10.22	10.22	
	(Q3–Q1)/2	4.66	4.71	

Table 9.6. Mean and median intakes of vegetables for colorectal cancer cases and controls – expressed in grams per week (Krakow case-control study; 2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Vegetables – total	Mean	619.27	715.94	
[g/week]	SD	324.68	449.55	0.001
	Median	550.03	582.79	
	(Q3–Q1)/2	166.88	215.13	
Raw vegetables – total	Mean	257.35	305.46	
[g/week]	SD	205.97	275.43	0.022
	Median	206.78	231.11	
	(Q3–Q1)/2	93.28	123.00	
lettuce	Mean	13.78	15.25	
[g/week]	SD	27.30	34.61	0.237
	Median	5.78	4.76	
	(Q3–Q1)/2	9.20	8.82	

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
cabbages, cucumber,	Mean	23.89	24.91	
radish	SD	40.76	34.72	0.188
[g/week]	Median	15.61	16.10	
	(Q3–Q1)/2	14.45	14.77	
carrot	Mean	27.53	28.85	
[g/week]	SD	52.62	41.11	0.668
	Median	19.04	18.20	
	(Q3–Q1)/2	16.38	18.41	
tomato, sweet	Mean	127.27	155.60	
pepper	SD	103.57	155.42	0.020
[g/week]	Median	100.17	106.44	
	(Q3–Q1)/2	59.25	70.97	
onion, chives	Mean	3.68	5.04	
[g/week]	SD	4.97	7.53	0.022
	Median	2.59	2.73	
	(Q3–Q1)/2	1.78	2.35	
mixed salads	Mean	61.19	75.81	
[g/week]	SD	65.19	94.81	0.304
	Median	47.22	46.97	
	(Q3–Q1)/2	29.31	37.54	
Processed vegetables – total	Mean	271.13	289.32	
[g/week]	SD	162.81	220.10	0.969
	Median	239.40	238.42	
	(Q3–Q1)/2	83.35	100.66	
cruciferous vegetables	Mean	128.19	138.84	
[g/week]	SD	103.48	129.55	0.811
	Median	108.05	109.97	
	(Q3–Q1)/2	67.86	66.36	
other vegetables	Mean	142.95	150.48	
[g/week]	SD	103.63	137.32	0.955
	Median	120.61	121.31	
	(Q3–Q1)/2	54.46	58.71	
Mushrooms	Mean	8.71	8.60	
[g/week]	SD	15.45	19.02	0.205
	Median	1.54	0.00	
	(Q3–Q1)/2	4.58	4.25	
Pickled vegetables	Mean	82.08	112.56	
[g/week]	SD	81.06	124.88	<0.001
	Median	67.76	82.18	
	(Q3–Q1)/2	44.86	53.64	
Potatoes and potatoes	Mean	668.87	689.84	
dishes	SD	340.37	409.51	0.794
[g/week]	Median	627.13	615.51	
	(Q3–Q1)/2	203.07	211.72	

Protein-rich products

Meat and meat's products

Tables 9.7 and 9.8 present consumption of meat and meat's products. The overall consumption of meats was lower among colorectal cancer cases (18.83 portions/week) than in the control group (19.52 portions/week), but this difference was not statistically significant. Poultry and rabbit consumption was higher in colorectal cancer patients (3.40 portions/week vs. 3.00 portions/week in the control group; p = 0.026). There were no differences between the study groups for the consumption of red meat (cases: 5.02 portions/week and controls: 5.01 portions/week) and organ meat (0.11 portions/week in both groups).

Analysis of meat processing and preparation showed that cases consumed more portions of cooked meat (2.70 portions/week) than controls (2.49 portions/week). There were no differences in consumption of fried/grilled meat and processed meat – Table 9.7.

Meat consumption expressed in grams per week did not show statistically significant differences between cases and controls and it was lower in cases (1211.63 g/week) compared with controls (1241.17 g/week). Poultry and rabbit consumption was slightly higher (291.24 g/week) in the colorectal cancer group than among the controls (264.46 g/week), but without statistical significance (p = 0.052).

Cases consumed significantly higher amount of cooked meat (191.52 g/week) and less processed meat (388. 47 g/week) than controls (169.75 g/week of cooked meat and 484.19 g/week of processed meat, respectively).

Table 9.7. Mean and median intakes of protein reach products for colorectal cancer cases and controls – expressed in number of portions per week (2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Meat – total	Mean	23.17	23.81	0.835
[portions/week]	SD	15.99	17.58	
	Median	18.83	19.52	
	(Q3–Q1)/2	7.60	8.38	
Based on origin:				
red meat	Mean	6.08	6.10	
[portions/week]	SD	4.92	5.25	0.486
	Median	5.02	5.01	
	(Q3–Q1)/2	2.35	2.83	
poultry and rabbit	Mean	3.93	3.62	
[portions/week]	SD	2.91	2.84	0.026
	Median	3.40	3.00	
	(Q3–Q1)/2	7.50	7.50	
organ meat	Mean	0.45	0.59	
[portions/week]	SD	0.89	1.52	0.473
	Median	0.11	0.11	
	(Q3–Q1)/2	0.22	0.28	

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Based on processing and preparation manner:				
cooked or stewed meat	Mean	3.55	3.30	
[portions/week]	SD	2.80	2.78	0.036
	Median	2.70	2.49	
	(Q3–Q1)/2	1.60	1.68	
fried, roast or grilled	Mean	6.75	6.72	
meat	SD	4.50	4.81	0.436
[portions/week]	Median	5.97	5.96	
	(Q3–Q1)/2	2.51	3.03	
processed meat	Mean	11.45	12.05	
[portions/week]	SD	11.05	12.50	0.789
	Median	8.03	8.07	
	(Q3–Q1)/2	4.74	4.99	
offal, giblets, pate,	Mean	1.42	1.74	
headcheese	SD	2.15	2.99	0.776
[portions/week]	Median	1.00	1.00	
	(Q3–Q1)/2	0.79	1.06	
Fish	Mean	1.76	2.04	
[portions/week]	SD	1.66	2.01	0.021
	Median	1.25	1.70	
	(Q3–Q1)/2	1.00	0.85	
fried or grilled fish	Mean	1.11	1.25	
[portions/week]	SD	1.15	1.37	0.074
	Median	1.00	1.00	
	(Q3–Q1)/2	0.95	0.89	
processed fish	Mean	0.65	0.79	
[portions/week]	SD	0.97	1.21	0.111
	Median	0.50	0.57	
	(Q3–Q1)/2	0.50	0.50	
Eggs	Mean	3.45	3.22	
[portions/week]	SD	2.85	3.04	0.004
	Median	3.00	2.27	
	(Q3–Q1)/2	1.07	1.44	

Fish

Fish consumption was lower among cases (1.25 portions/week) than in the control group (1.70 portions/week). No statistically significant differences were found for the consumption of fried/grilled and processed fish between the study groups.

Analysis of weight of consumed fish confirmed these results. Colorectal cancer patients consumed less fish (120.47 g/week) than respondents in the control group (157.29 g/week). This analysis did not show statistically important differences between cases and controls in consumption of fried/grilled and processed fish (Table 9.8).

Eggs

The last one protein-rich subgroup we analyzed were eggs. Higher intake of eggs and egg-based products was observed among the cases than controls, being 3.00 portions/week vs. 2.27 portions/week, respectively (Table 9.7). In terms of weight, median intake of eggs among the cases was 179.48 g/week and for the control group: 139.65 g/week. This difference was statistically significant (p = 0.003).

Table 9.8. Mean and median intakes of protein reach products for colorectal cancer cases and controls – expressed in grams per week (2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Meat – total	Mean	1415.60	1649.14	0.055
[g/week]	SD	967.20	1308.20	
	Median	1211.63	1241.17	
	(Q3–Q1)/2	385.57	533.44	
Based on origin:				
red meat	Mean	372.57	405.63	
[g/week]	SD	395.34	505.45	0.455
	Median	290.40	294.35	
	(Q3–Q1)/2	134.83	157.34	
poultry and rabbit	Mean	350.62	358.29	
[g/week]	SD	349.98	442.16	0.052
	Median	291.24	264.46	
	(Q3–Q1)/2	2546.64	2430.02	
organ meat	Mean	27.29	33.38	
[g/week]	SD	53.13	69.39	0.631
	Median	8.72	7.91	
	(Q3–Q1)/2	15.36	19.16	
Based on processing and preparation manner:				
cooked or stewed meat	Mean	236.77	234.59	
[g/week]	SD	258.38	263.97	0.045
	Median	191.52	169.75	
	(Q3–Q1)/2	78.78	91.75	
fried, roast or grilled	Mean	530.07	573.96	
meat	SD	465.56	651.25	0.257
[g/week]	Median	452.87	421.89	
	(Q3–Q1)/2	190.51	208.41	
processed meat	Mean	584.58	755.78	
[g/week]	SD	549.54	805.14	0.002
	Median	388.47	484.19	
	(Q3–Q1)/2	236.59	366.21	
offal, giblets, pate,	Mean	64.18	84.82	
headcheese	SD	90.55	151.11	0.431
[g/week]	Median	35.25	36.05	
	(Q3–Q1)/2	36.94	49.44	

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Fish	Mean	165.43	192.10	
[g/week]	SD	153.92	185.61	0.015
	Median	120.47	157.29	
	(Q3–Q1)/2	89.74	81.52	
fried or grilled fish	Mean	99.89	113.21	
[g/week]	SD	100.01	118.82	0.057
	Median	99.75	99.75	
	(Q3–Q1)/2	84.00	79.38	
processed fish	Mean	65.54	78.89	
[g/week]	SD	96.63	120.66	0.103
	Median	49.84	57.54	
	(Q3–Q1)/2	49.88	49.88	
Eggs	Mean	212.86	197.28	
[g/week]	SD	177.64	187.07	0.003
	Median	179.48	139.65	
	(Q3–Q1)/2	81.52	89.78	

Milk and dairy products

The analysis of milk and dairy products consumption among colorectal cancer cases and in the control group showed no statistically significant differences (Table 9.9). Slightly lower consumption of all dairy products analyzed together was observed in the cases (median: 18.63 portions/week) than among the controls (18.68 portions/week; $p = 0.092$). Cases had lower median intake of cheese (11.50 portions/week vs. 11.63 portions/week) and higher consumption of fat used for bread (14.30 portions/week vs. 14.00 portions/week). For other dairy products analyzed the median intakes were the same for both groups: 2.50 portions of milk and milk beverages per week, 2.50 portions of yogurt and 0.00 portions of ice cream per week (Table 9.9).

Analysis of dairy products intake in grams per week gave the same results: slightly lower consumption of all dairy products was observed in the cases group (1049.51 g/week) than among the controls (1128.05 g/week; $p = 0.069$). There were no statistically significant differences in the intake of milk and milk beverages, cheese, yogurt, ice cream and fat used for bread consumption between the study groups. Detailed information are presented in the Table 9.10.

Table 9.9. Mean and median intakes of dairy products for colorectal cases and controls – expressed in number of portions per week (2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Dairy products – total	Mean	19.62	21.98	
[portions/week]	SD	9.63	14.80	0.092
	Median	18.63	18.68	
	(Q3–Q1)/2	5.58	6.79	
Milk and milk	Mean	4.33	5.54	
beverages	SD	5.88	10.15	0.524
[portions/week]	Median	2.50	2.50	
	(Q3–Q1)/2	3.44	3.44	
Cheese, cottage	Mean	11.70	12.50	
cheese	SD	4.76	6.54	0.179
[portions/week]	Median	11.50	11.63	
	(Q3–Q1)/2	15.03	32.81	
Yogurt	Mean	3.10	3.37	
[portions/week]	SD	3.64	4.01	0.868
	Median	2.50	2.50	
	(Q3–Q1)/2	2.16	2.22	
Ice cream	Mean	0.49	0.56	
[portions/week]	SD	1.15	1.60	0.441
	Median	0.00	0.00	
	(Q3–Q1)/2	0.11	0.11	
Fat used for bread	Mean	21.42	21.95	
[portions/week]	SD	13.93	15.83	0.704
	Median	14.30	14.00	
	(Q3–Q1)/2	7.00	7.00	

Table 9.10. Mean and median intakes of dairy products for colorectal cases and controls – expressed in grams per week (2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Dairy products – total	Mean	1276.93	1540.03	
[g/week]	SD	1086.28	1730.10	0.069
	Median	1049.51	1128.05	
	(Q3–Q1)/2	612.47	667.45	
Milk and milk	Mean	649.04	833.21	
beverages	SD	882.49	1522.47	0.440
[g/week]	Median	373.94	373.94	
	(Q3–Q1)/2	516.36	516.36	
Cheese, cottage	Mean	182.90	212.23	
cheese	SD	169.56	226.02	0.288
[g/week]	Median	141.96	149.17	
	(Q3–Q1)/2	886.69	1120.00	

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Yogurt	Mean	427.77	474.72	
[g/week]	SD	479.76	556.16	0.679
	Median	373.94	373.94	
	(Q3–Q1)/2	330.80	333.70	
Ice cream	Mean	17.22	19.88	
[g/week]	SD	40.05	56.33	0.546
	Median	0.00	0.00	
	(Q3–Q1)/2	4.03	4.03	
Fat used for bread	Mean	107.11	109.53	
[g/week]	SD	69.68	79.02	0.657
	Median	71.47	70.00	
	(Q3–Q1)/2	35.00	35.00	

Alcohol and coffee and tea

Alcohol

Cases consumed more portions of different kinds of alcohol (median: 0.34 portions/week) than controls (0.17 portions/week). Beer was the most often consumed kind of alcohol and its median intake in colorectal cancer cases group achieved 0.11 portions per week and was higher than median intake among controls (0.00 portions/week). Less than 50% of respondents in both groups consumed wine and vodka, and the differences were statistically significant. In cases we observed lower mean intake of wine (0.21 portions/week vs. 0.26 portions/week) and higher mean intake of vodka (0.35 portions/week vs. 0.31 portions/week). The results are presented in Table 9.11.

The analysis of pure alcohol intake confirmed these results. Total weekly median intake of alcohol was 6.68 g of pure alcohol in cases and 2.88 g in controls. Beer intake reached median value of 2.88 g of pure alcohol among cancer patients and 0.00 g in the control group. Fewer cases than controls declared consumption of wine, however, wine consumption in cases was higher than in controls. Mean intake of pure alcohol from wine was 4.96 g/week in cases and 6.55 g/week in controls. Mean vodka intake was higher in the colorectal cancer patients (2.83 g of pure alcohol/week) than in the control group (2.49 g/week). All these differences were statistically significant (Table 9.12).

Tea and coffee

Tea and coffee consumption for both, cases and controls, were similar, and median consumption was 7 portions of coffee and 14 portions of tea per week in each group – Table 9.11. In terms of weight, the mean intake of coffee was 1050.00 g/week and tea: 2100.00 g/week – Table 9.12.

Statistically significant differences were found only for tea consumption (mean intake for both analysis of number of portions and weight was higher in control group).

Table 9.11. Mean and median intakes of alcohol and non-alcoholic beverages for colorectal cases and controls – expressed in number of portions per week (2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Alcohol – total	Mean	1.83	1.79	
[portions/week]	SD	3.83	4.47	0.010
	Median	0.34	0.17	
	(Q3–Q1)/2	1.00	0.80	
beer	Mean	1.27	1.21	
[portions/week]	SD	3.32	3.73	0.021
	Median	0.11	0.00	
	(Q3–Q1)/2	0.50	0.50	
wine	Mean	0.21	0.26	
[portions/week]	SD	0.62	1.62	0.004
	Median	0.00	0.00	
	(Q3–Q1)/2	0.06	0.03	
vodka	Mean	0.35	0.31	
[portions/week]	SD	1.02	1.16	0.001
	Median	0.00	0.00	
	(Q3–Q1)/2	0.11	0.06	
Coffee	Mean	7.69	8.05	
[portions/week]	SD	7.33	8.97	0.589
	Median	7.00	7.00	
	(Q3–Q1)/2	6.72	7.00	
Tea	Mean	15.44	17.61	
[portions/week]	SD	8.92	12.73	0.020
	Median	14.00	14.00	
	(Q3–Q1)/2	8.75	8.75	

Table 9.12. Mean and median intakes of alcohol and non-alcoholic beverages for colorectal cases and controls – expressed in grams per week (for alcohol beverages grams of pure alcohol) (2000–2008)

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
Alcohol – total	Mean	39.49	39.46	
[g/week]	SD	88.55	104.86	0.013
	Median	6.68	2.88	
	(Q3–Q1)/2	19.32	14.99	
beer	Mean	31.71	30.42	
[g/week]	SD	83.03	93.60	0.025
	Median	2.88	0.00	
	(Q3–Q1)/2	12.47	12.47	
wine	Mean	4.96	6.55	
[g/week]	SD	15.07	39.39	0.007
	Median	0.00	0.00	
	(Q3–Q1)/2	1.11	0.72	

Intakes		Cases N = 584	Controls N = 745	p value for Mann-Whitney test
vodka	Mean	2.83	2.49	
[g/week]	SD	8.17	9.25	0.001
	Median	0.00	0.00	
	(Q3–Q1)/2	0.92	0.46	
Coffee	Mean	1153.73	1211.57	
[g/week]	SD	1099.71	1344.85	0.645
	Median	1050.00	1050.00	
	(Q3–Q1)/2	1006.85	1050.00	
Tea	Mean	2316.59	2639.18	
[g/week]	SD	1337.67	1909.34	0.023
	Median	2100.00	2100.00	
	(Q3–Q1)/2	1313.24	1313.24	

Summary

- Cases had lower intake of fruits than controls, especially of apples (portions analysis).
- Cases consumed fewer portions of vegetables as well as pickled vegetables than controls. Analysis of weight of consumed vegetables showed that cases had lower intake of all vegetables, raw vegetables (especially: tomato/sweet paper and onion/chives) and pickled vegetables.
- No differences in consumption of meat products were observed. However, cases had higher consumption of poultry/rabbit and cooked/stewed meats. Analysis of weight of meats confirmed higher intake of cooked/stewed meats and higher intake of processed meats among cases.
- Overall, cases consumed less fish (portions and weight analysis) than controls.
- Consumption of eggs and egg-based products were higher among the colorectal cancer patients.
- No impact of milk and dairy product on colorectal cancer was observed.
- Intake of alcohol was higher among the cases. We have observed higher intake of beer and vodka and lower intake of wine among the cases than in the control group.
- Consumption of tea was lower among the cases than among the controls.